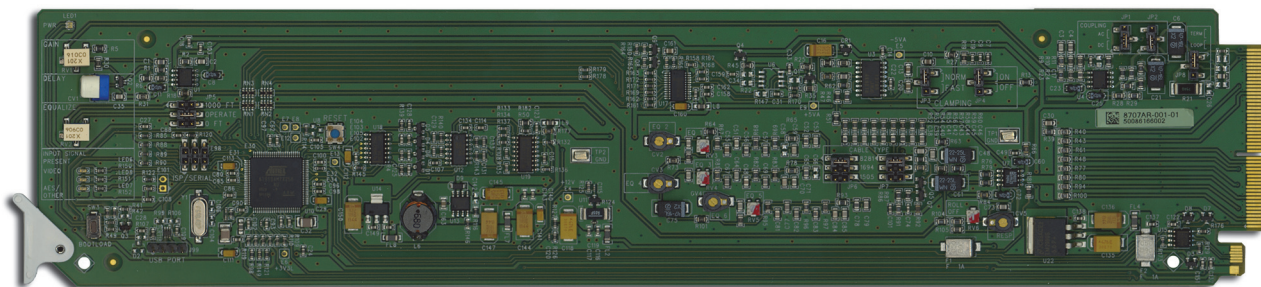


# VEA-8707A

## Analog Video Equalizing Distribution Amplifier User Manual



# Thank you for choosing Ross

You've made a great choice. We expect you will be very happy with your purchase of Ross Technology. Our mission is to:

1. Provide a Superior Customer Experience
  - offer the best product quality and support
2. Make Cool Practical Technology
  - develop great products that customers love

Ross has become well known for the Ross Video Code of Ethics. It guides our interactions and empowers our employees. I hope you enjoy reading it below.

If anything at all with your Ross experience does not live up to your expectations be sure to reach out to us at [solutions@rossvideo.com](mailto:solutions@rossvideo.com).



David Ross  
CEO, Ross Video  
[dross@rossvideo.com](mailto:dross@rossvideo.com)

## Ross Video Code of Ethics

Any company is the sum total of the people that make things happen. At Ross, our employees are a special group. Our employees truly care about doing a great job and delivering a high quality customer experience every day. This code of ethics hangs on the wall of all Ross Video locations to guide our behavior:

1. We will always act in our customers' best interest.
2. We will do our best to understand our customers' requirements.
3. We will not ship crap.
4. We will be great to work with.
5. We will do something extra for our customers, as an apology, when something big goes wrong and it's our fault.
6. We will keep our promises.
7. We will treat the competition with respect.
8. We will cooperate with and help other friendly companies.
9. We will go above and beyond in times of crisis. *If there's no one to authorize the required action in times of company or customer crisis - do what you know in your heart is right. (You may rent helicopters if necessary.)*

---

# VEA-8707A User Manual

- Ross Part Number: 8707ADR-004-02
- Release Date: September 29, 2014.

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## Patents

Patent numbers US 7,034,886; US 7,508,455; US 7,602,446; US 7,802,802 B2; US 7,834,886; US 7,914,332; US 8,307,284; US 8,407,374 B2; US 8,499,019 B2; US 8,519,949 B2; US 8,743,292 B2; GB 2,419,119 B; GB 2,447,380 B; and other patents pending.

---

# Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, refer to the “**Important Safety Instructions**” listed below to avoid personnel injury and to prevent product damage.

Product may require specific equipment, and/or installation procedures to be carried out to satisfy certain regulatory compliance requirements. Notices have been included in this publication to call attention to these specific requirements.

## Symbol Meanings



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*This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage to persons or equipment.*

---



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**Warning** — The symbol with the word “**Warning**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

---



---

**Caution** — The symbol with the word “**Caution**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

---



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**Notice** — The symbol with the word “**Notice**” within the equipment manual indicates a potentially hazardous situation, which, if not avoided, may result in major or minor equipment damage or a situation which could place the equipment in a non-compliant operating state.

---



---

**ESD Susceptibility** — This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.

---

## Important Safety Instructions



---

**Caution** — This product is intended to be a component product of the DFR-8321 series and OG3-FR series frame. Refer to the DFR-8300 and OG3-FR Series Frame User Manual for important safety instructions regarding the proper installation and safe operation of the frame as well as its component products.

---



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**Warning** — Certain parts of this equipment namely the power supply area still present a safety hazard, with the power switch in the OFF position. To avoid electrical shock, disconnect all A/C power cords from the chassis’ rear appliance connectors before servicing this area.

---



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**Warning** — Service barriers within this product are intended to protect the operator and service personnel from hazardous voltages. For continued safety, replace all barriers after any servicing.

*This product contains safety critical parts, which if incorrectly replaced may present a risk of fire or electrical shock. Components contained within the product’s power supplies and power supply area, are not intended to be customer serviced and should be returned to the factory for repair. To reduce the risk of fire, replacement fuses must be the same time and rating. Only use attachments/accessories specified by the manufacturer.*

---

## EMC Notices

### United States of America FCC Part 15

This equipment has been tested and found to comply with the limits for a class A Digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.



---

**Notice** — *Changes or modifications to this equipment not expressly approved by Ross Video Limited could void the user's authority to operate this equipment.*

---

### CANADA

This Class “A” digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe “A” est conforme à la norme NMB-003 du Canada.

### EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of CE Directive 93/68/EEC.

### INTERNATIONAL

This equipment has been tested to **CISPR 22:1997** along with amendments **A1:2000** and **A2:2002**, and found to comply with the limits for a Class A Digital device.



---

**Notice** — *This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.*

---

## Maintenance/User Serviceable Parts

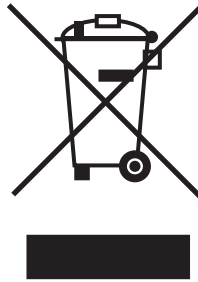
Routine maintenance to this openGear product is not required. This product contains no user serviceable parts. If the module does not appear to be working properly, please contact Technical Support using the numbers listed under the “Contact Us” section on the last page of this manual. All openGear products are covered by a generous 5-year warranty and will be repaired without charge for materials or labor within this period. See the “Warranty and Repair Policy” section in this manual for details.

## Environmental Information

**The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.**

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed out wheelie bin symbol invites you to use these systems.



If you need more information on the collection, re-use, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performance of our products.

---

## Company Address



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# Introduction

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## In This Chapter

This chapter contains the following sections:

- Overview
- Functional Block Diagrams
- User Interfaces
- Documentation Terms and Conventions

## A Word of Thanks

Congratulations on choosing an openGear VEA-8707A Analog Video Equalizing Distribution Amplifier. Your VEA-8707A is part of a full line of products within the openGear Terminal Equipment family of products, backed by Ross Video's experience in engineering and design expertise since 1974.

You will be pleased at how easily your new VEA-8707A fits into your overall working environment. Equally pleasing is the product quality, reliability and functionality. Thank you for joining the group of worldwide satisfied Ross Video customers!

Should you have a question pertaining to the installation or operation of your VEA-8707A, please contact us at the numbers listed on the back cover of this manual. Our technical support staff is always available for consultation, training, or service.

---

# Overview

The VEA-8707A Precision Video Equalizing Amplifier with Clamping precisely and easily equalizes your choice of three popular coaxial cable types: Belden 8281, 1694, or 1505A. This 3-cable type selection ability is achieved to a level of accuracy never before obtained in a single amplifier. All other amplifiers on the market are designed primarily for one type of cable and usually achieve mediocre results with other cable types, or require complex and time-consuming adjustment procedures.

During installation, the setting of a single adjustment is all that is needed to obtain unparalleled equalization accuracy, thanks to very accurate factory-calibration. The need to use elaborate frequency response measuring equipment in the field is eliminated.

Back porch clamping is provided to assist in the removal of hum or other signal disturbances. Two clamping speeds are jumper selectable. A differential input gives excellent ground loop rejection. The amplifier input may be AC or DC coupled.

Temperature drift effects are almost non-existent due to the use of the latest in analog ASIC's combined with meticulous product engineering.

The power to each VEA-8707A is individually fused to prevent failure of any one card from affecting the rest of the cards in the frame.

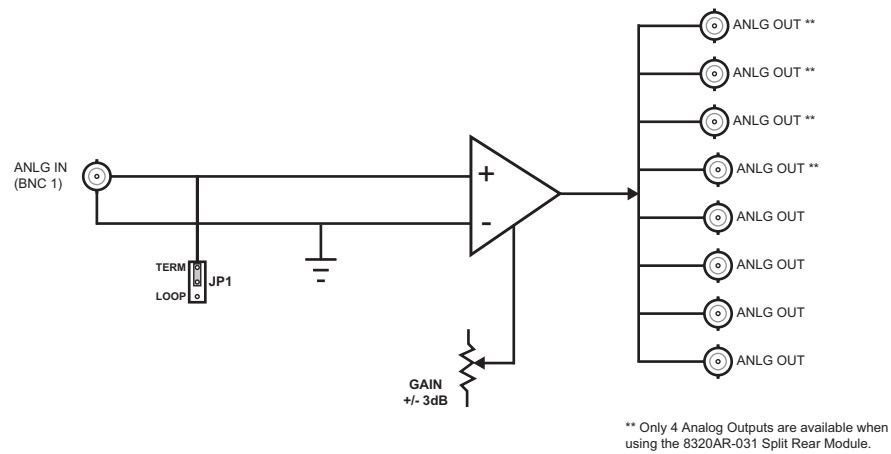
## Features

The following features make the VEA-8707A the best solution for general analog equalizing:

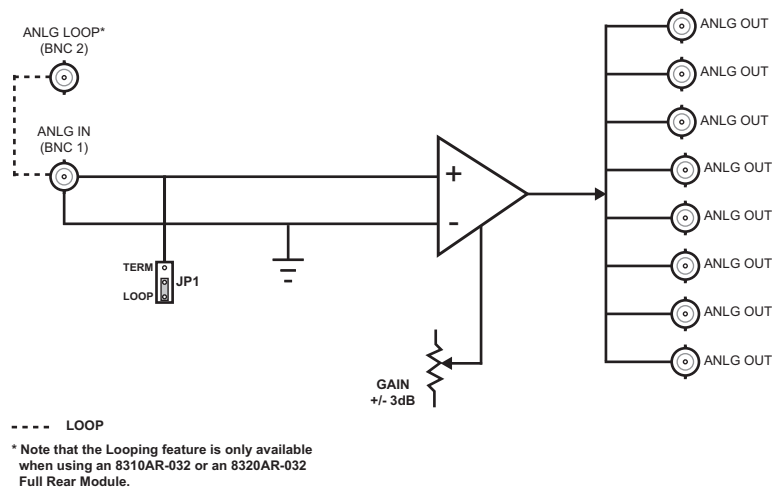
- Precision equalization of 3 selectable coaxial cable types up to 1,000ft (305m)
- Easy single-control equalization for fast installation
- AC or DC input coupling
- Back porch clamping
- Supports Tri-Level Sync distribution
- Delay matched for precise inter-changeability\
- Superb stability of frequency response
- Differential input for outstanding ground loop hum rejection
- Excellent isolation between outputs
- Reports status and configuration remotely via the DashBoard Control System
- Fits openGear frames
- Fully compliant with openGear specifications
- 5-year transferable warranty

# Functional Block Diagrams

This section provides functional block diagrams that outline the workflow of the VEA-8707A.



**Figure 1.1** VEA-8707A — Non-looping



**Figure 1.2** VEA-8707A — Looping

---

# User Interfaces

The following interfaces are available for control and monitoring of your VEA-8707A.

## DashBoard Control System

DashBoard enables you to monitor and control openGear frames and cards from a computer. DashBoard communicates with other cards in the openGear frame through the Network Controller card.

***For More Information on...***

- the menus in DashBoard, refer to the section “**DashBoard Menus**” on page 4-1.
- installing and using DashBoard, refer to the *DashBoard User Manual*.

## Card-edge Controls

The card-edge provides jumpers for adjusting the gain, delay, and equalization. From the card-edge you can also specify the cable type, clamping, and input coupling. LEDs are provided to monitor the input status signal.

***For More Information on...***

- the card-edge controls, refer to the section “**Card Overview**” on page 3-2.
- the card-edge LEDs, refer to the section “**Control and Monitoring Features**” on page 3-4.

## SNMP Monitoring and Control

The Network Controller card in the openGear frame provides optional support for remote monitoring and control of your frame and openGear cards using Simple Network Management Protocol (SNMP), which is compatible with many third-party monitoring and control tools.

***For More Information on...***

- SNMP controls on your card, refer to your VEA-8707A Management Information Base (MIB) file.
- SNMP Monitoring and Control, refer to your *MFC-8300 Series* or *MFC-OG3 Series User Manual*.

---

# Documentation Terms and Conventions

The following terms and conventions are used throughout this manual.

## Terms

The following terms are used:

- “**525-line mode**” refers to broadcast situations using **NTSC** composite (analog) signal reference inputs.
- “**625-line mode**” refers to broadcast situations using **PAL-B** or **PAL-G** composite (analog) signal reference inputs.
- “**Board**”, and “**Card**” refer to the VEA-8707A within openGear frames, including all components and switches.
- “**Frame**” refers to the openGear frame that houses the VEA-8707A card.
- “**DFR-8300 series**” refers to all version of the 10-slot (DFR-8310 series) and 20-slot (DFR-8321 series) frames and any available options unless otherwise noted.
- “**OG3-FR series**” refers to the OG3-FR series frames and any available options.
- “**openGear frame**” refers to the DFR-8300 series and OG3-FR series frames.
- “**Operator**” and “**User**” refer to the person who uses VEA-8707A.
- “**PAL**” refers to PAL-B, and PAL-G unless otherwise stated.
- “**System**” and “**Video system**” refer to the mix of interconnected production and terminal equipment in your environment.

## Conventions

The following conventions are used:

- The “**Operating Tips**” and “**Note**” boxes are used throughout this manual to provide additional user information.





# Installation

---

## In This Chapter

This chapter provides instructions for installing the Rear Module(s) for the VEA-8707A, installing the card into the frame, cabling details, and updating the card software.

The following topics are discussed:

- Before You Begin
- Installing the VEA-8707A
- Cabling for the VEA-8707A
- Software Upgrades for the VEA-8707A

---

# Before You Begin

Before proceeding with the instructions in this chapter, ensure that your openGear frame is properly installed according to the instructions in its manual.

## Static Discharge

Throughout this chapter, please heed the following cautionary note:



---

**ESD Susceptibility** — *Static discharge can cause serious damage to sensitive semiconductor devices. Avoid handling circuit boards in high static environments such as carpeted areas and when synthetic fiber clothing is worn. Always exercise proper grounding precautions when working on circuit boards and related equipment.*

---

## Unpacking

Unpack each VEA-8707A you received from the shipping container and ensure that all items are included. If any items are missing or damaged, contact your sales representative or Ross Video directly.

---

# Installing the VEA-8707A

This section outlines how to install a Rear Module in an openGear frame. The same procedure applies regardless of the frame or rear module type.

## Rear Modules for the VEA-8707A

The Rear Module for the VEA-8707A depends on the openGear frame you are installing the card into. The VEA-8707A is also compatible with the DFR-8310-BNC frames but this will not support the looping feature.

### Non-Looping Setup

Use one of the following rear modules when using a non-looping setup:

- **8310AR-030** Rear Module — Use this rear module if you do not want the looping feature. Note that the **8310AR-030** has the symbol “A” in the top left corner of the module face.
- **8320AR-030** Full Rear Module — Use this rear module if you do not want the looping feature. Note that the **8320AR-030** has the symbol “A” in the top left corner of the module face.
- **8320AR-031** Split Rear Module — Use this rear module to densely populate your frame. Because the looping feature is not available when using this rear module, ensure that the input for each card is terminated on the card by setting **JP8** to **TERM**.

### Looping Setup

Use one of the following rear modules when using a looping setup:

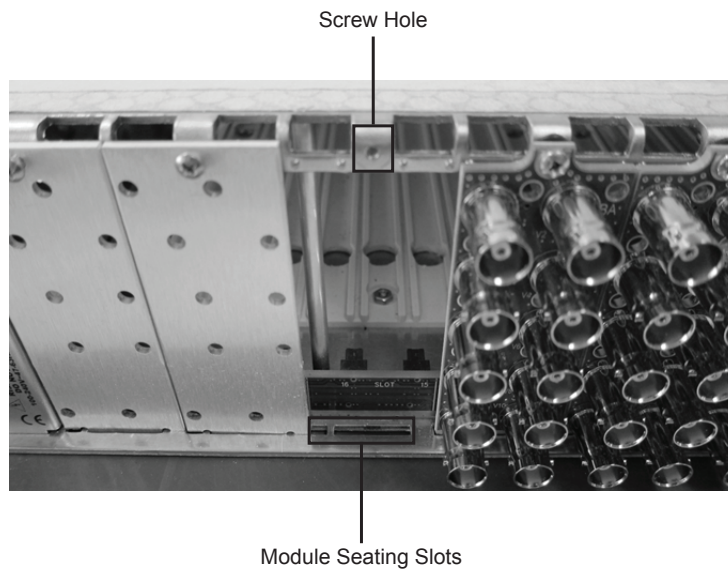
- **8310AR-032** Rear Module — Use this rear module to access the looping feature. Note that the **8310AR-032** module has the symbol “K” in the top left corner of the module face. If the input is looped on the rear module to another device, **JP8** must be set to **LOOP**. If looping is not used, either set **JP8** to **TERM**, or terminate the input externally at BNC 2.
- **8320AR-032** Full Rear Module — Use this rear module to access the looping feature. Note that the **8320AR-032** module has the symbol “K” in the top left corner of the module face. If the input is looped on the rear module to another device, **JP8** must be set to **LOOP**. If looping is not used, either set **JP8** to **TERM**, or terminate the input externally at BNC 2.

## Installing a Rear Module

If you are installing the VEA-8707A in a DFR-8310-BNC frame, or the Rear Module is already installed, proceed to the section “**Installing the VEA-8707A**” on page 2-4.

### To install a rear module in your openGear frame

1. Locate the card frame slots on the rear of the frame.
2. Remove the Blank Plate from the slot you have chosen for the VEA-8707A installation.
3. Install the bottom of the Rear Module in the **Module Seating Slot** at the base of the frame’s back plane. (**Figure 2.1**)



**Figure 2.1** Rear Module Installation in an openGear Frame (VEA-8707A not shown)

4. Align the top hole of the Rear Module with the screw on the top-edge of the frame back plane.
5. Using a Phillips screwdriver and the supplied screw, fasten the Rear Module to the back plane of the frame. Do not over tighten.
6. Ensure proper frame cooling and ventilation by having all rear frame slots covered with Rear Modules or Blank Plates.

## Installing the VEA-8707A



**Notice** — Heat and power distribution requirements within a frame may dictate specific slot placements of cards. Cards with many heat-producing components should be arranged to avoid areas of excess heat build-up, particularly in frames using convectional cooling.

### To install a VEA-8707A in the openGear frame

1. Locate the Rear Module you installed in the procedure “**Installing a Rear Module**” on page 2-3.
2. Hold the VEA-8707A by the edges and carefully align the card-edges with the slots in the frame.
3. Fully insert the card into the frame until the rear connection plugs are properly seated in the Rear Module.
4. Affix the supplied **Rear Module Label** to the BNC area of the Rear Module.

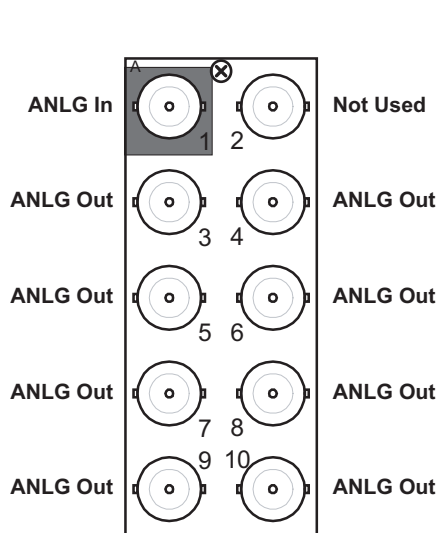
# Cabling for the VEA-8707A

This section provides information for connecting cables to the installed Rear Modules on the openGear frames. Connect the input and output cables according to the following sections.

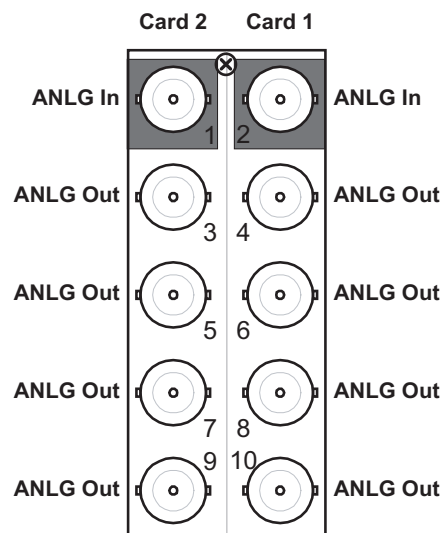
## Non-Looping Cabling Overview

Use the following rear modules for non-looping configurations:

- **8310AR-030** Rear Module — Each rear module occupies one slot and accommodates one card in the DFR-8310 series frames. This rear module provides eight analog video outputs, and an analog video input. The input must be terminated on the VEA-8707A using **JP8**. Refer to **Figure 2.2** for cable connections.
- **8320AR-030** Full Rear Module — Each rear module occupies two slots and accommodates one card in the DFR-8321 or OG3-FR series frames. This rear module provides eight analog video outputs, and an analog video input. The input must be terminated on the card by setting **JP8** to **TERM**. Refer to **Figure 2.2** for cable connections.
- **8320AR-031** Split Rear Module — Each rear module occupies two slots and accommodates two cards in the DFR-8321 or OG3-FR series frames. This rear module provides one analog video input, and four analog video outputs per card. Refer to **Figure 2.3** for cable connections.



**Figure 2.2** Cable Connections for the 8310AR-030 and 8320AR-030 Rear Modules



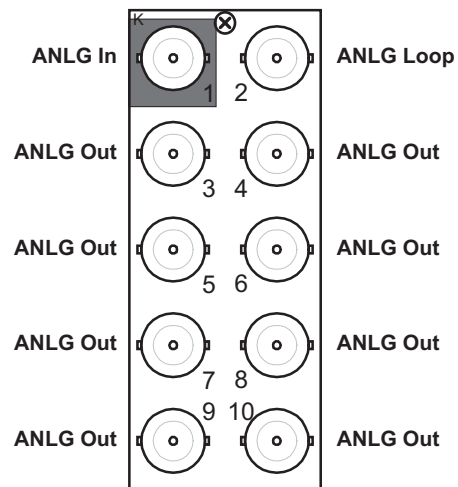
**Figure 2.3** Cable Connections for the 8320AR-031 Rear Module

## Looping Cabling Overview

Use the following rear modules for looping configurations:

- **8310AR-032** Rear Module — Each rear module occupies one slot and accommodates one card in the DFR-8310 series frames. This rear module provides eight analog video outputs, a single analog video input, and an input looping connection. Refer to **Figure 2.4** for cable connections.
- **8320AR-032** Full Rear Module — Each rear module occupies two slots and accommodates one card in the DFR-8321 or OG3-FR series frames. This rear module

provides eight analog video outputs, a single analog video input, and an input looping connection. Refer to **Figure 2.4** for cable connections.



**Figure 2.4** Cable Connections for the 8310AR-032 and 8320AR-032 Rear Modules

---

# Software Upgrades for the VEA-8707A

This section provides instructions for installing upgrading the software for your VEA-8707A using DashBoard.

## To upgrade the software for the VEA-8707A

1. Contact Ross Technical Support for the latest software version file.
2. In DashBoard, display the **Device** tab of the VEA-8707A by double-clicking its status indicator in the **Basic Tree View**.
3. From the **Device** tab, click **Upload** to display the **Select File for upload** dialog box.
4. Navigate to the \*.bin upload file you wish to upload. DashBoard automatically selects the last directory that you loaded from.
5. Click **Open** to display a confirmation dialog box. This dialog box displays the selected upload file name, type, size, and the file creation date.
6. From the **Confirmation** dialog box, select one of the following:
  - **Cancel** — Select this option to cancel the upload of the file and return to the **Device View**.
  - **Continue** — Select this option to upload the file. While uploading, an **Uploading Progress** dialog box opens.



---

**Important** — Clicking the **Cancel** button while uploading will leave the card in an invalid state. Do not click **Cancel** unless the uploading progress has stopped completely for 60 seconds or more.

---

7. Monitor the upgrade progress bar displayed in DashBoard while the software is upgraded on your VEA-8707A.
8. To complete the upgrade process, DashBoard performs an automatic reboot of the card.



---

**Note** — The communications processor of the VEA-8707A requires approximately 30 seconds to re-start and re-establish network communications.

---

- The VEA-8707A automatically saves all your settings before starting the reboot process.
- The status of all the cards in the frame are grayed out until the reboot process is complete.





# User Controls

---

## In This Chapter

This chapter provides a general overview of the user controls available on the VEA-8707A.

The following topics are discussed:

- Card Overview
- Control and Monitoring Features
- Notes on Clamping

# Card Overview

This section provides a general overview of the VEA-8707A components. For information on the LEDs available on the card-edge, refer to the section ““Control and Monitoring Features” on page 3-4.

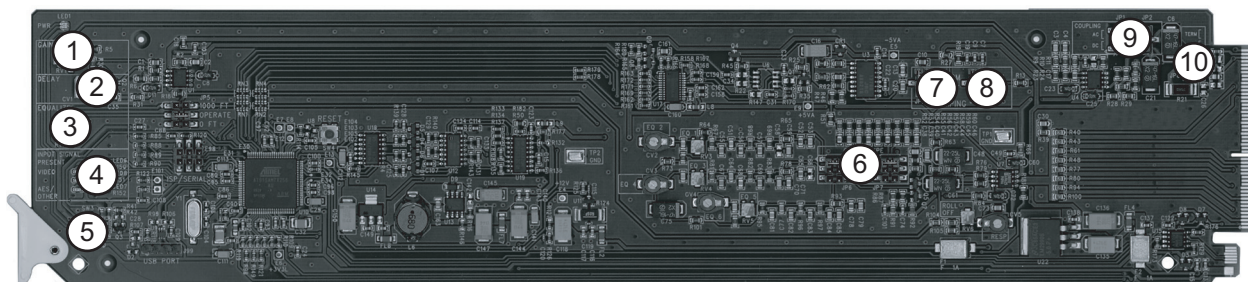


Figure 3.1 VEA-8707A — Components

1) Gain Adjustment ( <b>RV1</b> )	5) Bootload Button ( <b>SW3</b> )	9) Input Coupling ( <b>JP1</b> and <b>JP2</b> )
2) Delay Adjustment ( <b>CV1</b> )	6) Cable Type Selection ( <b>JP6</b> and <b>JP7</b> )	10) Local Termination Jumper ( <b>JP8</b> )
3) EQ Adjustment ( <b>RV2</b> )	7) Clamping Speed Selection ( <b>JP3</b> )	
4) Input Signal LEDs	8) Back Porch Clamping ( <b>JP4</b> )	

## 1. Gain Adjustment (**RV1**)

Use **RV7** to adjust the gain as required for your system and cable length. Use any suitable test signal that would enable the signal gain and sub carrier level to be correctly set (e.g. pulse and bar or color bar). A sweep signal can be used, but is not normally required.

## 2. Delay Adjustment (**CV1**)

The **CV1** delay adjustment is factory-set to ensure that the path length of every VEA-8707A is precisely matched. The VEA-8707A is factory-calibrated to have a delay of 26ns. This allows for maximum interchangeability of cards without affecting system timing. Changing from the factory setting will make this card non-interchangeable due to differences in delay. However, if desired, and interchangeability is not important, the timing adjustment **CV1** may be used to resolve minor system timing problems. **CV1** has a typical range of  $\pm 1.6\text{ns}$ .

## 3. EQ Adjustment (**RV2**)

Use **RV2** to offset any frequency losses resulting from the coaxial cable. Adjust for proper burst amplitude.

## 4. Input Signal LEDs

The front card-edge of the VEA-8707A has LED indicators that indicate the status of the input signals. Refer to the section “Status and Selection LEDs on the VEA-8707A” on page 3-4 for details.

## 5. Bootload Button (**SW3**)

This button is used for factory service in the unlikely event of a complete card failure. Refer to the section “Bootload Button” on page 6-2 for details on the bootload process.

## 6. Cable Type Selection (JP6 and JP7)

Use **JP6** and **JP7** in conjunction to select the input cable type being equalized. The two jumpers must both be positioned at only of the following selections:



---

**Note** — *For other cable types, select the closest option from the provided list.*

---

- **8281** — Select this option when using Belden 8281 cables. This is the default.
- **1694** — Select this option when using Belden 1694A cables.
- **1505** — Select this option when using Belden 1505A cables.

## 7. Clamping Speed Selection (JP3)

If **JP4** is set to the **ON** position, set **JP3** to configure the clamping speed as follows:

- **NORM** — Select this option for normal back porch clamping and to set the DC level of the back porch to ground level. This is the default.
- **FAST** — Select this option for fast back porch clamping. Use this setting for any signals which require clamping in less than 17 lines. This mode may be useful if the input signal is hard switched between two video signals with different DC offsets.

## 8. Back Porch Clamping (JP4)

Use **JP4** to configure the Back Porch Clamping feature as follows:

- **ON** — Select this option to enable the Back Porch Clamping feature on the supported formats. This is the default.
- **OFF** — Select this option to disable the feature or when using a format not supported for clamping (refer to **Table 5.1**). You must use this setting for any signals that do not include sync pulses such as AES audio, component, and unsupported Tri-Level Sync signals.

## 9. Input Coupling (JP1 and JP2)

Use **JP1** and **JP2** in conjunction to set the input coupling. The two jumpers must both be positioned on their AC or DC pin settings.

- **AC** — Use this setting if the back porch of the input signal is displaced from ground level by more than  $\pm 0.5V$  DC.
- **DC** — Use this setting to configure the entire amplifier to be DC coupled. This is the default.

## 10. Local Termination Jumper (JP8)

Use **JP8** to configure an optional 75ohm termination on the input of the VEA-8707A as follows:

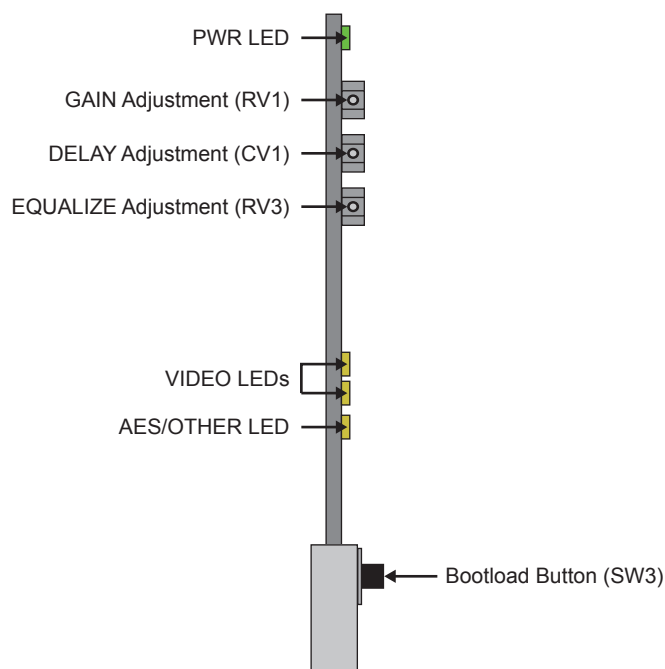
- **TERM** — Select this option to terminate the input signal on the card. This is the default.
- **LOOP** — Select this option to leave the input unterminated. For example, use this setting if you wish to loop the signal to another device.

### **For More Information on...**

- setting the clamping speed, refer to the section “**Notes on Clamping**” on page 3-6.
- the supported formats for clamping, refer to **Table 5.1**.

# Control and Monitoring Features

This section provides information on the jumpers, buttons and LEDs for the VEA-8707A. Refer to **Figure 3.2** for the location of the LEDs and controls.



**Figure 3.2** VEA-8707A Card-edge Controls

## Status and Selection LEDs on the VEA-8707A

The front-edge of the VEA-8707A has LED indicators for the power, and video status. Basic LED descriptions are provided in **Table 3.1**.



**Note** — *Slowly changing, or small amplitude signals, will pass through the VEA-8707A, but the VIDEO or AES/OTHER LEDs may be unlit. In this case, it is recommended to disable the **Notify on Input Loss** option in DashBoard. Note that most input signals are nominally set to 1V p-p.*

**Table 3.1** LEDs on the VEA-8707A

LED	Color	Display and Description
PWR	Green	When lit green, this LED indicates that the card is functioning normal and that no anomalies have been detected.
	Flashing Green	When flashing green, this LED indicates that the card requires a software upgrade.
	Flashing Green and Orange	When flashing green and orange, this LED indicates a signal error such as a missing or invalid input or reference.
	Red	When lit red, this LED indicates one of the following errors: <ul style="list-style-type: none"> <li>• a valid input signal is not present</li> <li>• the input signal does not match the forced input standard</li> <li>• the reference signal does not match the input signal</li> </ul>

**Table 3.1 LEDs on the VEA-8707A**

LED	Color	Display and Description
VIDEO	Yellow	When the top LED is lit, a valid SD video input signal is present on BNC 1.
		When the middle LED is lit, a valid HD video input signal is present on BNC 1.
AES/OTHER	Yellow	When lit, this LED indicates a valid AES signal, or some other analog signal, is present on the input. The signal must be greater than 0.3V p-p.

---

## Notes on Clamping

This section provides additional information when setting the clamping speed and the resulting clamp time.

### Clamping Speed and Time

**Table 3.2** lists typical clamp times for a 100mV step. For larger steps up to 500mV, clamp times increase linearly at 0.5msec/100mV and 1.1msec/100mV for **FAST** and **NORM** settings respectively. Note that HD and Format changes may take longer as the card re-synchronizes.

**Table 3.2 Clamping Speed and Time Values**

Clamping Speed (JP4)	Resulting Clamp Time	
FAST	0.5msec	NTSC/PAL: 8 lines
		1080i TLS: 17 lines
		720p TLS: 22 lines
NORM	1.1msec	NTSC/PAL: 17 lines
		1080i TLS: 37 lines
		720p TLS: 49 lines

# DashBoard Menus

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## In This Chapter

This chapter briefly summarizes the menus, items, and parameters available from DashBoard for your card. Default parameters are noted with an asterisk (\*).

The following topics are discussed:

- Status Tabs
- Setup Tab

---

## Status Tabs

This section summarizes the read-only information displayed in the **Status** tabs. The fields in the **Status** tabs can vary in severity from green (valid), yellow (caution), to red (alarm). DashBoard reports the most severe alarm for a single field. Alarm colors are noted within the tables as text set in brackets next to the menu parameter name.

### Product Tab

Table 4.1 summarizes the read-only information displayed in the **Product** tab.

**Table 4.1 Product Tab Items**

Tab Title	Item	Parameters	Description
<b>Product</b>	Product	VEA-8707A	
	Supplier	Ross Video Ltd.	
	Board Rev	##	
	Board S/N	#####	Indicates the card serial number
	Software Rev	##.##	Indicates the software version

### Hardware Tab

Table 4.2 summarizes the read-only information displayed in the **Hardware** tab.

**Table 4.2 Hardware Tab Items**

Tab Title	Item	Parameters	Description
<b>Hardware</b>	HW Status	OK	Indicates any problems with the card hardware components
		FPGA load invalid	
		Incomp I/O Module	
		Current out of spec	
		Internal Error	
	Voltage (mV)	#	Supply Voltage
	Current (mA)	#	Current consumption of card
	Rear Module	#	Indicates the rear module in the slot
	CPU Headroom	#	Processing power available
	RAM Available	##/##	On-board processing memory available
	Uptime (h)	#	Displays the number of hours since the last restart of the card
	Configuration Bank	#	Storage count



## Signal Tab

**Table 4.3** summarizes the read-only information displayed in the **Signal** tab.

**Table 4.3 Signal Tab Items**

Tab Title	Item	Parameters	Description
Signal	Signal Status	Video Present (Green)	Card is passing valid analog video
		AES/Other (Green)	Card is passing AES audio or other analog signal
		No Input (Green)	No input present or the signal is below the detection threshold. The Notify on Loss of Input option is disabled.
		No Input (Red)	No input present or the signal is below 0.3Vp-p. The Notify on Loss of Input option is enabled.
	Signal Format	480i 59.94	Indicates the valid video format detected
		720p 59.94	
		1080i 59.94	
		1080p 29.97	
		576i 50	
		720p 50	
		1080i 50	
		1080p 25	
		Unknown Video	Indicates a video signal is present but is an unknown format
		AES/Other	Indicates an audio or other analog signal is detected

---

## Setup Tab

**Table 4.4** summarizes the **Setup** options available in DashBoard for the VEA-8707A.

**Table 4.4 Setup Menu Items**

Tab Title	Item	Parameters	Description
Setup	Notify on Loss of Input	Selected*	Signal Status field in the Signal tab reports the loss of input
		Cleared	Disables the alarm
	Notify on Incomp Rear Module	Selected*	HW Status field in the Hardware tab reports when a rear module is not compatible with the card
		Cleared	Disables the alarm

# Specifications

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## In This Chapter

This chapter provides technical specifications details on the VEA-8707A. Note that specifications are subject to change without notification.

The following topics are discussed:

- Technical Specifications

# Technical Specifications

This section provides the technical specifications for the VEA-8707A.

**Table 5.1 VEA-8707A Technical Specifications**

Category	Parameter	Specification
<b>Analog Input</b>	Number of Inputs	1
	Video Input Level	1V p-p nominal
	Impedance	75ohm terminating
	Return Loss	38dB to 5MHz
	Maximum DC on Input	AC Coupling: +8/-1V DC Coupling: +/-1V
	Maximum Common Mode Signal	6V p-p @ 50/60Hz
	Common Mode Rejection	60dB @ 50/60Hz
<b>Analog Outputs</b>	Number of Outputs	8
	Impedance	75ohm
	Return Loss	46dB to 5MHz
	Isolation	45dB to 5MHz
	DC Offset	<30mV
	Propagation Delay	26ns (33.5° NTSC, 42.5° PAL)
	Output Loading (per termination at 10MHz)	0.01dB
<b>Performance (all outputs loaded)</b>	Gain Range	±3dB
	Gain Stability	<0.1% per 10°C
	Frequency Response	±0.02dB to 10MHz (cable EQ = 0ft)
	Bandwidth	-3dB @ 30MHz (typical)
	Line Rate Window Tilt	<0.3%
	Field Rate Window Tile	<0.2%
	50/60Hz Square Wave Tilt	<0.4%
	Bounce (black to white)	<0.3%
	Differential Gain (10%-90% APL)	<0.2%
	Differential Phase (10%-90% APL)	<0.15°
	Chrominance-to-Luminance Delay	<2.0ns
<b>Equalization</b>	Response Accuracy (for all supported cable types)	±0.03dB to 8MHz (0-1000ft) (0-305m) typically -0.2dB @ 10MHz

**Table 5.1 VEA-8707A Technical Specifications**

Category	Parameter	Specification
<b>Clamping</b>	Supported Formats for Clamping	NTSC, PAL 720p 60Hz, 720p 59.94Hz, 720p 50Hz 1080i 60Hz, 1080i 59.94Hz, 1080i 50Hz 1080p 30Hz, 1080p 29.94Hz, 1080p 25Hz
	Recovery Time (100mv step) <sup>a</sup>	<ul style="list-style-type: none"> <li>Clamp set to <b>NORM</b>: 17 lines NTSC/PAL, (1.1msec/100mv of step)</li> <li>Clamp set to <b>FAST</b>: 8 lines NTSC/PAL; (0.5msec/100mv of step)</li> </ul>
	Hum Rejection - <b>NORM</b> Mode	16dB
	Hum Rejection - <b>FAST</b> Mode	27dB
<b>Power</b>	Total Power Consumption	<3W

- a. Refer to the section “**Notes on Clamping**” on page 3-6 for additional information.



# Service Information

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## In This Chapter

This chapter contains the following sections:

- Troubleshooting Checklist
- Warranty and Repair Policy

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# Troubleshooting Checklist

Routine maintenance to this openGear product is not required. In the event of problems with your VEA-8707A, the following basic troubleshooting checklist may help identify the source of the problem. If the frame still does not appear to be working properly after checking all possible causes, please contact your openGear products distributor, or the Technical Support department at the numbers listed under the “**Contact Us**” section.

1. **Visual Review** — Performing a quick visual check may reveal many problems, such as connectors not properly seated or loose cables. Check the card, the frame, and any associated peripheral equipment for signs of trouble.
2. **Power Check** — Check the power indicator LED on the distribution frame front panel for the presence of power. If the power LED is not illuminated, verify that the power cable is connected to a power source and that power is available at the power main. Confirm that the power supplies are fully seated in their slots. If the power LED is still not illuminated, replace the power supply with one that is verified to work.
3. **Input Signal Status** — Verify that source equipment is operating correctly and that a valid signal is being supplied.
4. **Output Signal Path** — Verify that destination equipment is operating correctly and receiving a valid signal.
5. **Unit Exchange** — Exchanging a suspect unit with a unit that is known to be working correctly is an efficient method for localizing problems to individual units.

## Bootload Button

In the unlikely event of a complete card failure, you may be instructed by a Ross Technical Support specialist to perform a complete software reload on the VEA-8707A.

### To reload the software on a VEA-8707A

1. Eject the card from the frame.
2. Press and hold the **Bootload** button, while re-inserting the card into the frame.
3. Release the button.
  - The **PWR** LED flashes green while the card is waiting for a new software load.
  - If a new software load is not sent to the card within 60 seconds, the card will attempt to restart with its last operational software load.
  - Software loads can be sent to the VEA-8707A via the connection on the rear of the frame.



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## Warranty and Repair Policy

The VEA-8707A is warranted to be free of any defect with respect to performance, quality, reliability, and workmanship for a period of FIVE (5) years from the date of shipment from our factory. In the event that your VEA-8707A proves to be defective in any way during this warranty period, Ross Video Limited reserves the right to repair or replace this piece of equipment with a unit of equal or superior performance characteristics.

Should you find that this VEA-8707A has failed after your warranty period has expired, we will repair your defective product should suitable replacement components be available. You, the owner, will bear any labor and/or part costs incurred in the repair or refurbishment of said equipment beyond the FIVE (5) year warranty period.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profits) incurred by the use of this product. Implied warranties are expressly limited to the duration of this warranty.

This VEA-8707A User Manual provides all pertinent information for the safe installation and operation of your openGear Product. Ross Video policy dictates that all repairs to the VEA-8707A are to be conducted only by an authorized Ross Video Limited factory representative. Therefore, any unauthorized attempt to repair this product, by anyone other than an authorized Ross Video Limited factory representative, will automatically void the warranty. Please contact Ross Video Technical Support for more information.

### In Case of Problems

Should any problem arise with your VEA-8707A, please contact the Ross Video Technical Support Department. (Contact information is supplied at the end of this publication.)

A Return Material Authorization number (RMA) will be issued to you, as well as specific shipping instructions, should you wish our factory to repair your VEA-8707A. If required, a temporary replacement frame will be made available at a nominal charge. Any shipping costs incurred will be the responsibility of you, the customer. All products shipped to you from Ross Video Limited will be shipped collect.

The Ross Video Technical Support Department will continue to provide advice on any product manufactured by Ross Video Limited, beyond the warranty period without charge, for the life of the equipment.

**Notes:**

**Notes:**

# Contact Us

Contact our friendly and professional support representatives for the following:

- Name and address of your local dealer
- Product information and pricing
- Technical support
- Upcoming trade show information

## Technical Support

Telephone: +1 613 • 652 • 4886  
After Hours Emergency: +1 613 • 349 • 0006  
Email: [techsupport@rossvideo.com](mailto:techsupport@rossvideo.com)

## General Information

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